In the Claims:

1. (original) A centrifugal evaporator comprising a chamber in which sample containers are carried by a rotor and are pivotally mounted to the rotor so as to swing up and adopt a generally horizontal attitude as the rotor rotates, and a source of infra red radiation also mounted in the chamber so as in use to direct infra red radiation towards the rotor and the sample containers carried thereon, to heat at least the latter and any sample material therein for the purpose of evaporating liquid in the sample material, further comprising a non-contact temperature sensing infra red pyrometer having a sensor with a defined field of view which is mounted in the chamber such that while the rotor as such is substantially out of its field of view, each sample container at least partly occupies the pyrometer field of view for a part of each rotation of the rotor, and the positions of the infra red source and the pyrometer components are selected so that the radiation from the infra red source does not impinge on the pyrometer sensor.

2. (original) A centrifugal evaporator as claimed in claim 1 wherein the infra red source is selected and/or positioned so that in use its radiation predominantly impinges on the sample containers rather than the rotor as such.

3. (currently amended) A centrifugal evaporator as claimed in claim 1 ~~or 2~~ wherein the position of the pyrometer sensor within the chamber is chosen so that the rotor does not protrude into the pyrometer field of view.

4. (currently amended) A centrifugal evaporator as claimed in ~~any of claims 1 to 3~~ claim 1 wherein the sensor field of view is generally circular and the size of the sensor is such that it can be considered to be a point source/detector, and the diameter of the circular field of view increases with distance from the source to define a cone whose apex is at the centre of the sensor.

5. (original) A centrifugal evaporator as claimed in claim 4 wherein the diameter of the cone at any point along its axis is less than or equal to $1/10^{th}$ the distance from the point source to the said point, measured along the axis of the cone.

6. (currently amended) A centrifugal evaporator as claimed in ~~any of claims 1 to 5~~ claim 1 wherein the rotor axis is vertical and a vertical plane containing the rotor axis and the central point of the sensor makes an acute angle to a vertical plane containing the central point of the sensor and the central axis of the field of view of the sensor.

7. (original) A centrifugal evaporator as claimed in claim 6 wherein the acute angle is chosen to maximise the period of time for which each sample container is within the field of view of the sensor.

8. (original) A centrifugal evaporator as claimed in claim 7 wherein the acute angle is in the range 10 to 80 degrees.

9. (currently amended) A centrifugal evaporator as claimed in ~~any of claims 1 to 8~~ claim 1 wherein the direction of rotation of the rotor in the chamber is chosen so that any debris thrown from the rotor during evaporation will tend to be directed away from the sensor, so as generally not to impact thereon.

10. (currently amended) A centrifugal evaporator as claimed in ~~any of claims 1 to 9~~ claim 1 comprising temperature sensing means adapted to measure the temperature of the chamber close to an area of the interior of the chamber wall which is within the field of view of the sensor.

11. (original) A centrifugal evaporator as claimed in claim 10 wherein the chamber temperature sensing means is positioned in the chamber.

12. (original) A centrifugal evaporator as claimed in claim 11 further comprising electrical signal processing means receptive of signals from the IR pyrometer sensor and the temperature sensing means which is adapted to adjust the temperature values from the IR pyrometer sensor to take account of the chamber temperature.

13. (original) A centrifugal evaporator as claimed in claim 12 wherein further temperature sensing means is positioned so as to sense the temperature of a body of the pyrometer sensor and/or of a body of the chamber temperature corrections to be applied to the

temperature data from the IR pyrometer sensor and/or the chamber temperature sensing means.

14. (cancelled)